

**UNCLASSIFIED**

**AD 408 608**

---

**DEFENSE DOCUMENTATION CENTER**

**FOR**

**SCIENTIFIC AND TECHNICAL INFORMATION**

**CAMERON STATION, ALEXANDRIA, VIRGINIA**



**UNCLASSIFIED**

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

634-2

CATALOGED BY DDC 408608

AS AD No. \_\_\_\_\_

408 608

**Electrical Engineering Research Laboratory  
The University of Texas**

**Austin, Texas**

Report No. 131

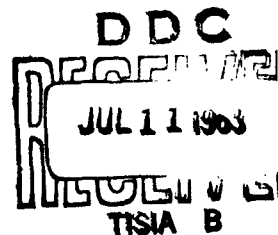
30 June 1963

**BIBLIOGRAPHY OF  
TECHNICAL REPORTS, PUBLICATIONS, AND THESES**

March 1961-June 1963

Contract Nonr 375(14)

NR 371-032



**OFFICE OF NAVAL RESEARCH  
Washington, D. C.**

**Requests for additional copies by Agencies of the Department of Defense, their contractors, and other Government Agencies should be directed to**

**DDC  
Arlington Hall Station  
Arlington 12, Virginia**

**Department of Defense contractors must be established for DDC services or have their "need-to-know" certified by the cognizant military agency of their project or contract.**

**All other persons and organizations should apply to the**

**U. S. Department of Commerce  
Office of Technical Services  
Washington 25, D. C.**

**ELECTRICAL ENGINEERING RESEARCH LABORATORY  
THE UNIVERSITY OF TEXAS  
Austin, Texas**

**Report No. 131**

**30 June 1963**

**BIBLIOGRAPHY OF  
TECHNICAL REPORTS, PUBLICATIONS, AND THESES**

**March 1961-June 1963**

**Contract Nonr 375(14)  
NR 371-032**

**OFFICE OF NAVAL RESEARCH**

**Washington, D. C.**

## I. INTRODUCTION

Electrical Engineering Research Laboratory Reports Nos. 106 and 121 presented consolidated listings of the publications of this Laboratory as of the end of February 1961. A supplemental listing was made up and distributed which covered the period from March 1, 1961 through January 1962.

This report will supplement 106 and include the listings in the supplemental report. No effort will be made to list informal reports such as memoranda and quarterly status reports except where significant technical information is involved.

## II. SPONSORING AGENCIES AND CONTRACTS

Since the basic listing has been given in the two previous reports only those which have been in effect at some time during the period March 1961 up to the present time will be listed here.

### U. S. Navy - Office of Naval Research

Nonr 375(01)

Nonr 375(14)

### U. S. Air Force

1. Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio

AF 33(616)-6257

AF 33(657)-7333

AF 33(657)-8716

## 2. Air Force Cambridge Research Laboratories

### a. Geophysics Research Directorate

AF 19(604)-5556

AF 19(604)-7279

### b. Electronics Research Directorate

AF 19(604)-8038

AF 19(604)-8036

AF 19(604)-8513

## U. S. Army

### 1. White Sands Missile Range

DA-23-072-ORD-1564

### 2. Signal Research and Development Laboratories

DA-36-039-SC-84937

DA-36-039 SC-89179

### 3. Electronics Research and Development Activity

DA-SIG-36-039-61-G11

### III. TECHNICAL REPORTS TO SPONSORING AGENCIES

#### A. U. S. Navy

##### 1. Office of Naval Research

No.	Title	Author(s)	Contract
121	"Bibliography of Technical Reports, Publications and Theses, February 1959-February 1961," 28 February 1961		Nonr 375 (01)
122	"Observations of 4.3 mm Radiation During the Solar Eclipse of 15 February 1961," 20 April 1961	L. C. Krause W. W. Bahn T A. Walker C. W. Tolbert	Nonr 375 (01)
123	"Instrumentation and Techniques for Simultaneous Measurement and Synchronous Transcription of Tellurics," 31 May 1961	F. U. Williams F. H. Hopkins, Jr.	Nonr 375(01)
124	"Final Report on Research Activities in Millimeter Radio-waves and Geomagnetism," 31 July 1961		Nonr 375(01)
125	"Lunar Radiation at 4.3 mm During the 25 August 1961 Eclipse and the Lunar Model," 15 November 1961	C. W. Tolbert L. C. Krause R. M. Dickinson	Nonr 375(14)
126	"Micropulsation Sensors with Laminated Mumetal Cores," 25 May 1962	Lorimer K. Hill Francis X. Bostick, Jr.	Nonr 375(14)



No.	Title	Author(s)	Contract
127	"Investigation of Large Scale Inhomogeneities in the Earth by Magnetotelluric Method," 1 June 1962	F. X. Bostick, Jr.	Nonr 375(14)
128	"Report of Co-operative Geomagnetic Measurement Program of The Pacific Naval Laboratory, The University of British Columbia, The University of Alberta and The University of Texas, 31 May 1962	H. W. Smith	Nonr 375(14)
129	"General Dispersion Relations for a Partially-Ionized Gas," 28 February 1963	C. E. Prince, Jr. F. X. Bostick, Jr.	Nonr 375(14)
130	"A Survey of Geomagnetic Micropulsation Research Conducted in Connection with the Co-operative Geomagnetic Micropulsation Measurement Program" 15 May 1963	H. W. Smith	Nonr 375(14)
131	"Bibliography of Technical Reports, Publications and Theses," March 1961 through June 1963		Nonr 375(14)

B. U. S. Air Force

## 1. Aeronautical Systems Division, W-PAFB, Ohio

No.	Title	Author(s)	Contract
5-48	"Analysis of Resonant Cavity Techniques for Measurement of Effective Electron Density in a Plasma Stream," 30 June 1961	W. P. Cahill W. C. Duesterhoeft A. P. Deam	AF 33(616)-6257
5-49	"An Outline of the Basic Equations and Concepts of Plasma Dynamics," 30 September 1961	W. C. Duesterhoeft B. M. Fannin	AF 33(616)-6257
5-50	"Electron Density Measurements with a Pound System in Flowing Ionized Helium," 30 September 1961	A. P. Deam	AF 33(616)-6257
5-51	"Final Report," 30 September 1961		AF 33(616)-6257
5-52	Attenuation and Emission of 58 to 62 kMc/s Frequencies in the Earth's Atmosphere" Report of Research 1 September 1962 through 31 March 1963		AF 33(657)-7333
	A. Synopsis of Attenuation and Emission Investigations of 58 to 62 kMc/s Frequencies in the Earth's Atmosphere	C. W. Tolbert	
	B. Atmospheric Absorption of Radio Signals at 58 to 62 kMc/s	R. L. Sullivan	

No.	Title	Author(s)	Contract
	C. Spectroscopic Measurements of Oxygen Absorption Line Shape	L. F. Stafford	
	D. Emission at 60.3 kMc/s and Attenuation between 64.6 and 68.6 kMc/s in the Earth's Atmosphere	L. C. Krause W. W. Bahn	

## 2. Air Force Cambridge Research Laboratories

### a. Geophysics Research Directorate

4-04	"Data Interpretation Procedures for the Cedar Hill Meteorological Tower Installation," 30 May 1961	W. S. Simpson	AF 19(604)-5556
4-05	"Total Attenuation, Scattering and Absorption Cross-Sections of Water Drops for Infrared Radiation," 31 August 1961	J. J. Stephens	AF 19(604)-7279
4-06	"A Digital Meteorological Data-Acquisition System," 15 January 1962	W. S. Mitcham	AF 19(604)-5556

No.	Title	Author(s)	Contract
4-07	"Operation and Performance of the Cedar Hill Meteorological Tower Facility"	W. S. Mitcham J. R. Gerhardt	AF 19(604)-5556
4-08	Final Report - "The Design of an Enclosure for the Investigation of Atmospheric Thermal Radiation Phenomena"	Claude Duchon Glen Willis	AF 19(604)-7279

b. Electronics Research Directorate

6-43	"Power Spectrum and Correlation Function Evaluation of Selected Tower Refractometer Measurements," 31 October 1961	G. B. Walker	AF 19(604)-8038
6-44	"Frequency Characteristics of Radio Propagation Over a Grove of Trees in Full Leaf," 15 January 1962	A. H. LaGrone C. W. Chapman P. E. Martin	AF 19(604)-8038
6-45	Final Report-Part I "The Investigation of Solar Emission and the Attenuation and Emission of the Earth's Atmosphere at the Frequencies of 69.75 and 94.0 kMc/s" 31 March 1962	C. W. Tolbert A. W. Straiton T. A. Walker	AF 19(604)-8036
6-46	Final Report-Part II "Microwave Line Shapes at Low Pressure" 31 March 1962	C. O. Britt C. E. Boggs	AF 19(604)-8036

No.	Title	Author(s)	Contract
6-47	"The Use of the TM <sub>omo</sub> Cavity Modes for Dielectric Distribution" 15 July 1962	A. P. Deam	AF 19(604)-8038
6-48	Evaluation of Earth Probe Antennas for VLF Reception"	Paul E. Martin F. X. Bostick, Jr. A. P. Deam A. W. Straiton	AF 19(604)-8513
6-49	"Theoretical Study of the Bandwidth of Radio Propagation Media" 31 August 1962	B. M. Fannin	AF 19(604)-8038
6-50	"A Solution for <u>ELF</u> Propagation in the Earth-Ionosphere Cavity Bounded by an Inhomogeneous Anisotropic Ionospheric Medium" 31 October 1962	C. W. Chapman	AF 19(604)-8038
6-51	"An Approximate Solution of the Radio Field Strength in the Vicinity of a Grove of Trees" 15 January 1963	Alfred H. LaGrone	AF 19(604)-8038
6-52	"High Altitude Microvariations Within the Atmosphere's Radio Refractive-Index Profile" 28 February 1963	A. P. Deam G. B. Walker	AF 19(604)-8038
6-53	"Considering Forest Vegetation as an Imperfect Dielectric Slab" 31 May 1963	D. J. Pounds	AF 19(604)-8038
6-54	Title Classified 31 May 1963	Geo. Hopkins F. X. Bostick, Jr.	AF 19(604)-8513
6-55	"Antenna and Radio Wave Propagation Characteristics at VHF Near and in the Ground" 30 June 1963	D. M. Schwartz A. H. LaGrone	AF 19(604)-8038

# C. U. S. Army

## 1. White Sands Missile Range

No.	Title	Author(s)	Contract
3	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Third Quarterly Technical Report, 1 January 1961 through 31 March 1961	K. H. Jehn N. K. Wagner J. R. Gerhardt	DA-23-072 - ORD-1564
4	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Fourth Quarterly Technical Report, 1 April 1961 through 30 June 1961	N. K. Wagner D. R. Haragan K. H. Jehn	DA-23-072 - ORD-1564
5	"Wind and Temperature in the Atmosphere Between 30 and 80 Km" Fifth Quarterly Technical Report, 1 July 1961 through 30 September 1961	N. K. Wagner D. R. Haragan K. H. Jehn J. R. Gerhardt	DA-23 -072 - ORD-1564
6	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Sixth Quarterly Technical Report, 1 October 1961 through 31 December 1961	D. R. Haragan N. K. Wagner J. R. Gerhardt	DA-23-072 ORD-1564
7.	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Seventh Quarterly Technical Report, 1 January 1962 through 31 March 1962	N. K. Wagner D. R. Haragan J. R. Gerhardt	DA-23-072 ORD-1564
8	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Eighth Quarterly Technical Report, 1 April 1962 through 30 June 1962	D. R. Haragan N. K. Wagner J. R. Gerhardt	DA-23-072 ORD-1564

No.	Title	Author(s)	Contract
9	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Ninth Quarterly Technical Report, 1 July 1962 through 30 September 1962	N. K. Wagner D. R. Haragan J. R. Gerhardt	DA-23-072 ORD-1564
10	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Tenth Quarterly Technical Report, 1 October 1962 through 31 December 1962	N. K. Wagner D. R. Haragan	DA-23-072 ORD-1564
11	"Wind and Temperature in the Atmosphere Between 30 and 80 Km," Eleventh Quarterly Technical Report, 1 January 1963 through 31 March 1962	D. R. Haragan N. K. Wagner	DA-23-072 ORD-1564

## 2. Signal Research and Development Laboratory

3	"Research in Tropical Meteorology," Third Quarterly Technical Report, 1 January 1961 through 31 March 1961	W. H. Portig V. C. Kowalik J. R. Gerhardt	DA-36-039 SC-84937
4	"Research in Tropical Meteorology - Final Report- Part I - Design of a Long Range Program of Basic Research in Tropical Meteorology," 30 June 1961	W. H. Portig J. R. Gerhardt	DA-36-039 SC-84937

No.	Title	Author(s)	Contract
5	"Research in Tropical Meteorology - Final Report- Part II - Some Mesoscale Meteorological Phenomena of the Caribbean Area," 30 June 1961	W. H. Portig V. C. Kowalik	DA-36-039 SC-84937
6	"Research in Tropical Meteorology - Final Report- Part III - Author Bibliography," 30 June 1961	W. H. Portig S. J. Durie	DA-36-039 SC-84937
7	"Research in Tropical Meteorology" First Interim Technical Report, 1 November 1961 through 28 February 1962	W. H. Portig J. R. Gerhardt	DA-36-039 SC-89179
8	"Research in Tropical Meteorology," Second Interim Technical Report, 1 March 1962 through 30 June 1962	W. H. Portig J. R. Gerhardt	DA-36-039 SC-89179
7-22	"Summary Proceedings of the Conference on Tropical Meteorology," 30 September 1962	W. H. Portig J. R. Gerhardt	DA-36-039 SC-89179

### 3. Electronics Research and Development Activity

7-19	"The Refractor-Reflector Antenna," 15 January 1962	R. M. Dickinson	DA-SIG-36- 039-61-G11
7-20	"Propagation Measurements in the Vicinity of the 183 Gc/s Water Vapor Line," 5 February 1962	G. T. Coats R. A. Bond C. W. Tolbert	DA-SIG-36- 039-61-G11



No.	Title	Author(s)	Contract
7-21	"Dispersion at Milli- meter Wavelengths in Methyl and Ethyl Alcohols," 31 May 1962	J. A. Saxton R. A. Bond G. T. Coats R. M. Dickinson	DA-SIG-36- 039-61-G11

## IV. TECHNICAL PUBLICATIONS

No.	Title	Author(s)	Publication Source
144	"Microwave Refractive-Index Distributions Associated with the Central United States Cold Outbreak"	K. H. Jehn	<u>Bulletin of the American Meteorological Society</u> , Vol. 42, No. 2, February 1961, pp. 71-76
145	"Directional Properties and Phase Relations of the Magnetotelluric Field at Austin, Texas"	H. W. Smith L. D. Provazek F. X. Bostick, Jr.	<u>Journal of Geophysical Research</u> , Vol. 66, No. 3, March 1961, pp. 879-888
146	"An Analysis of Recent Measurements of the Atmospheric Absorption of Millimeter Radio Waves"	C. W. Tolbert A. W. Straiton	<u>Proceedings of IRE</u> , Vol. 49, No. 2, March 1961, pp. 649-650
147	"Radiation from a Current Filament above a Homogeneous Earth, with Application to Micropulsations"	P. F. Law B. M. Fannin	<u>Journal of Geophysical Research</u> , Vol. 66, No. 4, April 1961, pp. 1049-1060
148	"The Effect of the Time Constant of Radiosonde Sensors on the Measurement of Temperature and Humidity Discontinuities in the Atmosphere"	N. K. Wagner	<u>Bulletin of the American Meteorological Society</u> , Vol. 42, No. 5, pp. 317-320, May 1961
149	"Experimental Determinations of the Back-Scattering Cross-Sections of Water Drops and of Wet and Dry Ice Spheres at 3.2 Centimeters"	J. R. Gerhardt C. W. Tolbert S. A. Brunstein W. W. Bahn	<u>Journal of Meteorology</u> , Vol. 18, No. 3, pp. 340-347, June 1961

No.	Title	Author(s)	Publication Source
150	"Radar Cross-Sections for Water and Ice Spheres"	J. J. Stephens	<u>Journal of Meteorology</u> , Vol. 18, No. 3, pp. 348-359, June 1961
151	"Solar Emission at Millimeter Wave Lengths"	C. W. Tolbert A. W. Straiton	<u>Astrophysical Journal</u> , Vol. 134, No. 1, July 1961 pp. 91-95
152	"Electronic Disdrometer"	D. E. Clardy C. W. Tolbert	<u>The Review of Scientific Instruments</u> , Vol. 32, No. 8, pp. 916-919, August 1961
153	"Some Propagation Characteristics of High UHF Signals in the Immediate Vicinity of Trees"	A. H. LaGrone C. W. Chapman	<u>IRE Transactions on Antennas and Propagation</u> , Vol. AP-9, No. 5, Sept. 1961, pp. 487-491
154	"Theoretical Time Constant and Radiation Error of a Rocketsonde Thermistor"	N. K. Wagner	<u>Journal of Meteorology</u> , Vol. 18, No. 5, October 1961, pp. 606-614
155	"Further Studies of the Back-Scattering Cross-Sections of Water Drops and Wet-and Dry-Ice Spheres"	J. R. Gerhardt C. W. Tolbert	<u>Journal of Meteorology</u> , Vol. 18, No. 5, pp. 688-691, October 1961
156	"Nonresonant Dielectric Dispersion in Asymmetric Rotors"	J. E. Boggs A. P. Deam	<u>Journal of Chemical Physics</u> , Vol. 35, No. 4, pp. 1178-1180, October 1961
157	"Absorption Cross-Sections of Water Drops for Infrared Radiation"	J. J. Stephens J. R. Garhardt	<u>Journal of Meteorology</u> , Vol. 18, No. 6, pp. 818-822, December 1961

No.	Title	Author(s)	Publication Source
158	"Spectrally Average Total Attenuation, Scattering, and Absorption Cross-Sections for Infrared Radiation"	J. J. Stephens	<u>Journal of Meteorology</u> , Vol. 18, No. 6, pp. 822-826, December 1961
159	"An Example of a Nocturnal, Low-Level Jet Stream"	J. R. Gerhardt	<u>Journal of the Atmospheric Sciences</u> , Vol. 19, No. 1, pp. 116-118, January 1962
160	"Digital Computation of the Mutual Impedance Between Thin Dipoles"	H. C. Baker A. H. LaGrone	<u>Transactions of the IRE</u> , PGAP, March 1962
161	"Height Gain Measurements at VHF and UHF Behind a Grove of Trees"	A. H. LaGrone P. E. Martin C. W. Chapman	<u>IRE Transactions on Broadcasting</u> , Vol. BC-9, No. 1, pp. 37-54, February 1963
162	"Meteorological Engineering" and "Engineering Meteorology"	K. H. Jehn	<u>Bulletin of the American Meteorological Society</u> , (correspondence) Vol. 43, No. 4, p. 156, April 1962
163	"Radiosonde for Atmospheric Refractive Index Measurements"	A. P. Deam	<u>Review of Scientific Instruments</u> , Vol. 33, No. 4, April 1962, pp. 438-441.
164	"They Can See the Wind"	J. R. Gerhardt A. W. Straiton	<u>Alcalde</u> , pp. 12-13 May 1962
165	"A Consideration of Microwave Radiation Associated with Particles in the Atmosphere of Venus"	C. W. Tolbert A. W. Straiton	<u>Journal of Geophysical Research</u> , Vol. 67, No. 5, pp. 1741-1744, May 1962

No.	Title	Author(s)	Publication Source
166	"Spectral Distribution of Atmospheric Index of Refraction Fluctuations"	A. W. Straiton A. P. Deam G. B. Walker	<u>National Aerospace Electronics Conference Proceedings</u> 1962 Dayton, Ohio, May 14-16, pp. 711-718
167	"Lunar Radiation of 4.3 Millimeters during the 25 August 1961 Eclipse and the Lunar Model"	C. W. Tolbert L. C. Krause R. M. Dickinson	<u>National Aerospace Electronics Conference Proceedings</u> , 1962, Dayton, Ohio, May 14-16, pp. 733-740
168	"Observations of 4.3 MM Radiation During the Solar Eclipse of February 15, 1961"	C. W. Tolbert A. W. Straiton	<u>Astrophysical Journal</u> , Vol. 135, No. 3, pp. 822-826, May 1962
169	"Dispersion at the Millimeter Wavelengths in Methyl and Ethyl Alcohols"	J. A. Saxton R. A. Bond G. T. Coats R. M. Dickinson	<u>Journal of Chemical Physics</u> , Vol. 37, No. 9, pp. 2132-2138, November 1, 1962
170	"Spectra of Radio Refractive Index Between Ground Level and 5000 Feet Above Ground"	A. W. Straiton A. P. Deam G. B. Walker	<u>IRE Transactions on Antennas and Propagation</u> , Vol. AP-10, No. 6, pp. 732-737, November 1962
171	"A 1400-Foot Meteorological Tower with Automatic Data Readout"	J. R. Gerhardt W. S. Mitcham A. W. Straiton	<u>Proceedings of the IRE</u> , Vol. 50, No. 11, pp. 2263-2271, November 1962.
172	"The Application of Inverse Convolution Techniques to Improve Signal Response of Recorded Geophysical Data"	C. F. George H. W. Smith F. X. Bostick, Jr.	<u>Proceedings of the IRE</u> , Vol. 50, No. 11, pp. 2313-2319, November 1962.

No.	Title	Author(s)	Publication Source
173	"Investigation of Large-Scale Inhomogeneities in the Earth by the Magnetotelluric Method"	F. X. Bostick, Jr. H. W. Smith	<u>Proceedings of the IRE</u> , Vol. 50, No. 11, pp. 2339-2346, November 1962
174	"Earth Probe Antennas"	P. E. Martin A. W. Straiton	<u>Ground Support Equipment</u> , (G-S-E) Vol. 4, No. 5, Oct. -Nov. 1962, pp. 19-22
175	"Conference for the Planning of Research in Tropical Meteorology"	W. H. Portig	<u>Bulletin of the American Meteorological Society</u> , Vol. 44, No. 2, pp. 79-82, Feb. 1963.
176	"Mesoscale Association of a Low-Level Jet Stream with a Squall Line-Cold Front Situation"	J. R. Gerhardt	<u>Journal of Applied Meteorology</u> , Vol. 2, No. 1, pp. 49-55, February 1963
177	"The Sky is the Limit for Radar Tracking Accuracy"	A. W. Straiton	<u>Naval Research Reviews</u> , Vol. XVI, No. 4, pp. 14-16, April 1963.
178	"Shape of Oxygen Absorption Lines in the Microwave Region"	L. F. Stafford C. W. Tolbert	<u>Journal of Geophysical Research</u> , Vol. 68, No. 11, June 1, 1963, pp. 3431-3435

## V. THESES

### Doctor of Philosophy in Electrical Engineering, June 1961

96. Ittipon Padungchewit: "Analysis of Magnetotelluric Signals by Power Density Spectra Methods," supervised by H. W. Smith, The University of Texas.

### Master of Science in Electrical Engineering, June 1961

97. Francis Xavier Bostick: "An Analysis of the Magnetotelluric Method for Determining Subsurface Resistivities," supervised by H. W. Smith, The University of Texas.
98. William Dent Simpson: "Data Interpretation Procedure for the Cedar Hill Meteorological Tower Installation," supervised by A. W. Straiton, The University of Texas.
99. Franklin Udolph Williams: "Instrumentation and Techniques for Simultaneous Measurement and Synchronous Transcription of Tellurics," supervised by H. W. Smith, The University of Texas.

### Master of Science in Electrical Engineering, August 1961

100. Wilbur Patrick Cahill: "Analyses of Resonant Cavity Techniques for Measurement of Effective Electron Density in a Plasma Stream," supervised by W. C. Duesterhoeft, The University of Texas.

### Doctor of Philosophy in Electrical Engineering, January 1962

101. Chester O. Britt: "The Microwave Absorption of Some Gases in the Millimeter Spectrum," supervised by A. W. Straiton, The University of Texas.

### Master of Science in Electrical Engineering, January 1962

102. Richard M. Dickinson: "The Refractor-Reflector Antenna," supervised by A. W. Straiton, The University of Texas.
103. William Smith Mitcham: "A Digital Meteorological Data-Acquisition System," supervised by A. W. Straiton, The University of Texas,

104. Gene Bert Walker: "Power Spectrum and Correlation Function Evaluation of Selected Tower Refractometer Measurements," supervised by A. W. Straiton, University of Texas.

Doctor of Philosophy in Electrical Engineering, June 1962

105. H. Charles Baker: "The Evaluation of Mutual Impedance Between Two Thin Linear Antennas," supervised by A. H. LaGrone, The University of Texas,

Master of Science in Electrical Engineering, June 1962

106. Lorimer Kenneth Hill: "Micropulsation Sensors with Laminated Mumetal Cores," supervised by A. W. Straiton, The University of Texas.

Master of Science in Electrical Engineering, August 1962

107. William Richard Cooper, Jr.: "Magnetic Permeability in High Frequency Alternating Fields," supervised by A. H. LaGrone, The University of Texas.

108. Clovis Ray Hale: "A Transistorized Pulse-Width Coder," supervised by A. W. Straiton, The University of Texas.

Master of Science in Electrical Engineering, January 1963

109. Carroll W. Chapman: "A Solution for ELF Propagation in the Earth-Ionosphere Cavity Bounded by an Inhomogeneous Anisotropic Ionospheric Medium," supervised by B. M. Fannin, The University of Texas.

110. Howard Thomas Nerland: "Design Study of a Large Millimeter Wave Antenna," supervised by A. W. Straiton, The University of Texas.

111. Lannon F. Stafford: "Spectroscopic Measurement of Oxygen Absorption Line Shape," supervised by A. W. Straiton, The University of Texas.

112. Roy L. Sullivan, II: "Atmospheric Absorption of Radio Signals at 58 to 62 kMcs," supervised by A. W. Straiton, The University of Texas.



Doctor of Philosophy in Electrical Engineering, June 1963

- 113. Charles Floyd George, Jr.: "Application of Special Filtering Techniques to Well Log Analysis," supervised by H. W. Smith, The University of Texas.
- 114. Robert Couth Mathis: "A Lunar Echo Study at 425 MCS," supervised by A. W. Straiton, The University of Texas.

Master of Science in Electrical Engineering, June 1963

- 115. Donnie Joe Pounds: "Considering Forest Vegetation as an Imperfect Dielectric Slab," supervised by A. H. LaGrone, The University of Texas.

# Distribution List for Report No. 131

Addressee	Attn.	No. of Copies
DEPARTMENT OF THE NAVY		
Director, ONR Branch Office The John Crerar Library Building, 10th Floor 86 E. Randolph Street Chicago 1, Illinois		1
Special Representative, ONR Main Building 2507, The University of Texas Austin, Texas		1
Office of Naval Research Washington 25, D. C.	Code 427 Code 416	1 1
Office of Naval Research Branch Office, London Navy 100, Box 39, Fleet Post Office New York, New York		1
Officer in Charge, Navy 100, Fleet Post Office, New York, New York		1
Office of the Chief of Naval Operations Washington 25, D. C.	OP-551E	1
Commander U. S. Naval Ordnance Test Station China Lake, California		1
Commander U. S. Naval Missile Test Center Point Mugu, California	Code 366	1

## Dist List for Report 131

Commanding Officer U. S. Naval Air Development Center Johnville, Pennsylvania	NADC Library	1
Commanding Officer U. S. Naval Underwater Sound Laboratory New London, Connecticut		1
Director U. S. Naval Research Laboratory Washington 25, D. C.	Code 2027 Code 5270	1 1
U. S. Navy Electronics Laboratory San Diego, California	Dr. Earl Gossard Library	1 1
Chief, Bureau of Naval Weapons Washington 25, D. C.	DLI-31	1
Chief of Naval Operations Frequency Allocation Section, OP-941 Q Room 5E777, The Pentagon Washington 25, D. C.		1
Director Naval Ordnance Laboratory White Oak, Maryland		1
Chief, Bureau of Ships Department of the Navy Washington 25, D. C.	Code 337 Code 686	1 1
Chief, Bureau of Aeronautics Department of the Navy Washington 25, D. C.	Code CL 50 Code EL 90	1 1
David Taylor Model Basin Washington 7, D. C.	Dr. F. N. Frenkiel, Applied Math Lab	1
DEPARTMENT OF THE AIR FORCE		
Commanding General Hq USAF Washington 25, D. C.		1

## Dist. List for Report 131

Air Force Cambridge Research Laboratories	CRIPA-Stop 39	1
Office of Aerospace Research	CRZPC-1, R. M. Cummingham	1
L. G. Hanscom Field	CRRST, Leon Ames	1
Bedford, Massachusetts	CRUQ, Ming Wong	1
	CRZHB, Yutaka Izumi	1
	ESRDG	1
Aeronautics Systems Divisions	ASAPRD-Dist	1
Wright-Patterson AFB, Ohio	ASRNRE-3, Mr. Paul Springer	1
	ARL (ARA-2),	1
	Library AFL 2292, Bldg. 450	
Institute of Technology Library		1
MCLI-LIG, Building 125 Area B		
Wright-Patterson Air Force Base, Ohio		
A-F Office of Aerospace Research	SRYP	1
Tempo D, 4th and Independence	RROSP, Maj. R. W. Nelson	1
Washington 25, D. C.		
Rome Air Development Center (RAALD)	Document Library	1
Griffis AFB, New York		
Weather Officer		1
552 AEW & Con Wing (520D0)		
McClellan AFB, California		
Hq. USAF (AFRDR)		1
Washington 25, D. C.		
Hq. USAF (AFCSA, Secretary)		1
Washington 25, D. C.		
AF Missile Development Center (MDGRT)		1
Holloman AFB, New Mexico		
AFMTC (AFMTC Tech Library-MU-135)		1
Patrick AFB, Florida		

## Dist. List for Report 131

Air University Library	1
Maxwell AFB, Alabama	

APGC (PGAPI)	1
Eglin AFB, Florida	

ADC (ADOCE-DL)	1
Ent AFB, Colorado	

AF Ballistic Missile Division (WDSOT)	1
Air Force Unit Post Office	
Los Angeles 45, California	

## DEPARTMENT OF THE ARMY

Office of the Chief Signal Officer	SIGFO-B4, Geo. W.	1
U. S. Army Radio Frequency Engineering Office	Hayden	
Washington 25, D. C.	SIGRD-4a-a	1

U. S. Army Research and Development Laboratories	Director of Research	1
Ft. Monmouth, New Jersey	SIGFM/EL-AT	1
	Tech Doc Ctr,	1
	SIGRA/SL-ADT	
	Administrative Engineer	1

Commanding General	Technical Library	1
U. S. Army Ordnance Missile Command	Redstone Scientific	1
Redstone Arsenal, Alabama	Information Ctr.	
	ORDDW-GMK	1

Commanding Officer	ORDTL-012	1
Diamond Ordnance Fuze Laboratory		
Washington 25, D. C.		

U. S. Army Aviation Human Research Unit	Maj. Arne H. Eliasson	1
U. S. Continental Army Command		
P. O. Box 428,		
Fort Rucker, Alabama		

## Dist. List for Report 131

Engineering Research & Development Laboratories Fort Belvoir, Virginia	Mr. W. P. Scales, Surveying Branch	1
Commanding Officer Fort Huachuca, Arizona	Radio Meteorological Section	1
Commanding Officer U. S. Army Signal Engineering Laboratories White Sands Missile Range White Sands, New Mexico	Missile Meteorology Division, Mr. Chas. Querfeld SIGWS-MG, Mr. W. Webb	1  1
MISCELLANEOUS		
Director of Defense, Research and Development The Pentagon Washington 25, D. C.	Technical Library Room 3C-128	1
Office of Technical Services U. S. Department of Commerce Washington 25, D. C.		1
Office of Scientific Intelligence Central Intelligence Agency 2430 E. Street, N. W. Washington 25, D. C.		1
National Aeronautics and Space Agency Washington 25, D. C.	Library, 1520 H. Street, N. W. Library Code HFET-LA Stop 85	1  1
Scientific and Technical Information Facility P. O. Box 5700 Bethesda, Maryland	NASA Representative (S-AK/DL)	1
Advanced Research Projects Agency Room 3D170, The Pentagon Washington 25, D. C.	Lt. Comdr. D. E. Chandler	1

## Dist. List for Report 131

Director		1
Langley Research Center		
NASA		
Langley Field, Virginia		
Library		1
U. S. Weather Bureau		
24th and M Streets, N. W.		
Washington 25, D. C.		
Program Director, Engineering Sciences		1
National Science Foundation		
Washington 25, D. C.		
Central Radio Propagation Laboratory	Library	1
National Bureau of Standatds	K. A. Norton	1
Boulder, Colorado		
National Center for Atmospheric Research		1
Boulder, Colorado		
Federal Communications Commission		1
Room 2209, New P. O. Building		
Washington 25, D. C.		
Climatic Center, USAF		1
Annex 2, 225 D Street, S. E.		
Washington 25, D. C.		
Commandant (EEE)		1
U. S. Coast Guard (Sta. 5-5)		
1300 E. Street, N. W.		
Washington 25, D. C.		
Director, USAF Project RAND		1
The RAND Corporation		
1700 Main Street		
Santa Monica, California		
Thru: AF Liaison Office		

## Dist. List for Report 131

New York University	Prof. Morris Kline	1
Institute of Mathematical Sciences	Dr. R. Silverman	1
25 Waverly Place		
New York 3, New York		
 New York University	Dept. of Meteorology & Oceanography	1
181 Street and University Avenue		
Bronx, New York		
 Woods Hole Oceanographic Institute		1
Woods Hole, Massachusetts		
 University of Michigan, Willow Run Laboratories	Mr. Weston Vivian	1
Willow Run Airport		
Ypsilanti, Michigan		
 University of Florida	Engineering and Industrial Experiment Station	1
Colloège of Engineering		
Gainesville, Florida		
 University of New Mexico	Donald C. Thorn	1
Engineering Experiment Station		
Albuquerque, New Mexico		
 Technical Reports Collections	Mrs. Elizabeth Farkas	1
Gordon McKay Library		
Harvard University		
Div. of Engineering and Applied Physics		
Pierce Hall, Oxford Street		
Cambridge 38, Massachusetts		
 Massachusetts Institute of Technology	John H. Hewitt	1
Research Laboratory of Electronics		
Building 26, Room 327		
Cambridge 39, Massachusetts		
 Stanford Research Institute		1
Menlo Park, California		
 Stanford Electronics Laboratories	Applied Electronics Lab, Document Library	1
Stanford University		
Stanford, California		



## Dist. List for Report 131

Scripps Institution of Oceanography La Jolla, California		1
Harvard Observatory 60 Garden Street Cambridge 38, Massachusetts	A. E. Lilley, Dept. of Radio Astronomy	1
Department of Electrical Engineering University of Michigan Ann Arbor, Michigan	Dr. S. S. Atwood	1
Dr. Nicholas George 333 Spalding Building California Institute of Technology Pasadena, California		1
Department of Oceanography and Meteorology Texas A & M College College Station, Texas	Dr. Vance Moyer	1
Cornell Aeronautical Laboratory, Inc. of Cornell University 4455 Genesee Street Buffalo 21, New York	Dr. Walter Flood	1
Cornell University School of Electrical Engineering Ithaca, New York	Dr. W. Gordon	1
EE Research Laboratories University of Illinois Urbana, Illinois	P. D. Coleman Room 218	1
Engineering Experiment Station Georgia Institute of Technology Atlanta 13, Georgia		1
Department of Electrical Engineering California Institute of Technology Pasadena, California	Dr. C. H. Papas	1

## Dist. List for Report 131

•	Bell Telephone Company P. O. Box 107 Red Bank, New Jersey	Dr. R. Kompfner	1
•	Bell Telephone Laboratories, Inc. Technical Information Library Whippany Laboratory Whippany, New Jersey	Technical Reports Librarian	1
	STL Technical Labrary Document Acquisitions Space Technology Laboratories, Inc. P. O. Box 95001 Los Angeles 45, California		1
	Sylvania Electronic Defense Laboratory P. O. Box 205 Mountain View, California	Mr. P. O. Engelder	1
•	Lockheed Aircraft Corporation Department 72-25 Military Operations Research Division Burbank, California	Mr. G. L. Arnold	1
•	The Mitre Corporation 244 Wood Street Lexington 73, Massachusetts	Mrs. Jean E. Claflin, Librarian	1
	Electromagnetic Research Corporation 5001 College Avenue College Park, Maryland	Mr. Martin Katzin	1
•	Documents Library R-3446 General Electric Company Missile and Space Vehicle Department 3198 Chestnut Street Philadelphia 4, Pennsylvania		1
•	Hughes Aircraft Company Communications Division Box 90902 Los Angeles, California		1

## Dist. List for Report 131

Antenna Research Laboratory Ohio State University Columbus 10, Ohio	Dr. Thomas Tice	1
Applied Physics Laboratory The Johns Hopkins University 8621 Georgia Avenue Silver Springs, Maryland	Technical Reports Group	1
The University of Arizona Institute of Atmospheric Physics Tucson, Arizona	Georgia W. Savage	1
British Joint Services Mission (Navy Staff) P. O. Box 165, Benjamin Franklin Station Washington, D. C. to go thru Hq. AFCRL, OAR ( CRRE ) L. G. Hanscom Field Bedford, Massachusetts	F. C. Bruce	1
Radio Research Station Department of Scientific and Industrial Research Ditton Park, Slough, Bucks England	Dr. J. A. Saxton	1
Geophysics Institute Tohoku University Sendai, Japan		1
Sylvania Electric Products, Inc. P. O. Box 205 Mountain View, California	Miss Katherine E. Johnson, Electronics Defense Laboratory	1
Smyth Research Associates 3555 Aero Court Research Park San Diego 11, California		1

**Dist. List for Report 131**

Library, ERL 427 Corey Hall, University of California Berkeley 4, California	1
RCA Laboratories Princeton, New Jersey	Miss Fern Cloak 1
ITT Laboratories 3700 E. Pontiac Street Fort Wayne, Indiana	
Mr. H. Everett Moore Admiral Corporation Government Electronics Division 3800 Cortland Street Chicago 47, Illinois	1